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Claims

1. A continuous extrusion machine having a chassis (1) supporting a wheel (2) for rotation and a shoe (3) enveloping a span of the periphery of the wheel (2) and co-
5 operating with a groove (7) formed in the periphery of the wheel (2) to form a passage, a support mechanism supporting said shoe (3) and/or wheel (2) to be relatively displaceable in a direction perpendicular to the axis of rotation of the wheel (2) during use, a gap sensor system able to sense the size of a gap (12) between the wheel periphery and the shoe (3) when the machine is operating, and control means
10 responsive to the gap sensor system to adjust the support mechanism to displace the shoe (3) relative to the wheel (2).
2. A continuous extrusion machine according to claim 1 wherein the gap sensor system is able to detect the shape of the gap (12).
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3. A continuous extrusion machine according to claim 1 or claim 2 wherein the support mechanism comprises a wedge assembly (13,14) having a wedge (16,24) longitudinally displaceable against a complementary ramp (17,25).
- 20 4. A continuous extrusion machine according to claim 3 wherein the support mechanism has a first wedge assembly (13) and a second wedge assembly (14), the first wedge assembly disposed to displace the shoe (3) in a first direction perpendicular to the axis of rotation of the wheel (2) and the second wedge assembly disposed to displace the shoe (3) in a direction perpendicular to the rotary axis of the wheel (2) and
25 the first wedge assembly whereby the size and shape of the gap (12) can be altered during operation.

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5. A continuous extrusion machine according to claim 3 or claim 4 wherein each wedge (16,24) is displaced by hydraulic rams (19, 26)

6. A continuous extrusion machine according to claim 5 wherein the gap sensor system comprises a gap sensor (4,4A,5) which senses the gap size directly.

7. A continuous extrusion machine according to claim 6 wherein the gap sensor system provides at least two gap sensors (4,4A,5) each located peripherally spaced from the other, to sense the size and shape of the gap (12).

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8. A continuous extrusion machine according to claim 7 wherein the gap sensor system includes a first gap sensor (4) located at the entrance to the passage, a second gap sensor (4A) located immediately upstream of tooling (9) in the shoe (3) and a third gap sensor (5) is located downstream of an abutment (8).

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9. A continuous extrusion machine according to any one of claims 6 to 8 wherein the sensor is a sonic gap sensor.

10. A continuous extrusion machine according to any one of the preceding claims wherein a scraper blade (47) is supported on a scraper carrier (43) for radial displacement with respect to the rim of the wheel (2), said scraper carrier (43) being driven by a motor (46) controlled by the control device in accordance with signals received from a gap (12) sensor (48) mounted on the carrier to detect the separation of the tip of the scraper blade (47) and the periphery of the wheel (2).

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11. A continuous extrusion machine according to claim 10 wherein the motor displaces the scraper carrier (43) by rotation of an eccentric shaft (44).

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12. A continuous extrusion machine according to any one of claims 9 to 11 wherein the gap sensor (48) is a sonic gap sensor.

5 13. A method of operating a continuous extrusion machine wherein feedstock is entrained in a groove (7) formed in the periphery of a wheel (2) rotating in a chassis (1) and drawn into a passage formed between the groove (7) and a shoe (3), said passage being obstructed by an abutment supported by the shoe (3) so that friction between the shoe (3) and the abutment will cause the feedstock to extrude through a die supported in
10 the shoe (3), comprising the steps of: sensing the actual size of a gap (12) between the wheel (2) and the shoe (3),

comparing the actual size of the gap (12) with a predetermined or previous gap size in a control means to determine if there is a difference, said control means responding to a difference to control a support structure which supports the shoe (3)
15 and/or the wheel (2) in the chassis (1) to displace the shoe (3) and/or the wheel (2) on at least one axis perpendicular to the axis of rotation of the wheel (2) so that the gap (12) is changed to reduce the difference.

20 14. A method according to claim 13 wherein the shape of the gap is sensed

15. A method according to claim 14 wherein the predetermined gap size is set to a desired gap size while the machine is extruding.

25 16. A method according to any one of claims 13 to claim 15 wherein the gap size is sensed at at least one position comprising the steps of:

i. blowing a pressurised gas through the gap (12) at at least one, point adjacent the passage,

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- ii. adjusting the gas pressure to be sufficient to that the gap (12) is choked,
- iii. sensing the gas pressure upstream of the gap (12),
- iv. communicating the gas pressure to the control means,
- v. calculating the actual gap (12) size from the gas pressure.

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17. A method according to claim 16 wherein the gap size is sensed at at least two circumferentially spaced points adjacent the passage to determine the shape of the gap (12).